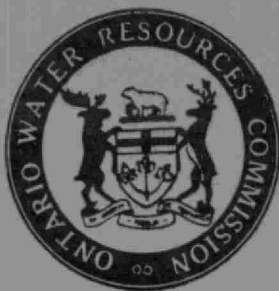


STANDARDS DEVELOPMENT BRANCH OMOE



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THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

of the

VILLAGE OF WHEATLEY

in the

COUNTY OF KENT

1967

VILLAGE OF WHEATLEY - 1967  
COUNTY OF KENT

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TD  
380  
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1967

Report on a water pollution  
survey of the village of  
Wheatley, county of Kent.

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REPORT  
ON A  
WATER POLLUTION SURVEY  
OF THE  
VILLAGE OF WHEATLEY  
COUNTY OF KENT  
1967  
DISTRICT ENGINEERS BRANCH  
DIVISION OF SANITARY ENGINEERING.

# ONTARIO WATER RESOURCES COMMISSION

## REPORT

### INTRODUCTION

A water pollution survey of water quality in surface water drains, storm sewers and watercourses within the Village of Wheatley was conducted during 1967. The purpose of this survey was to update a previous report written in 1964 and to examine the status of pollution conditions at this time.

### GENERAL

The Village of Wheatley with an assessed population of 1479 (1967 Municipal Directory) is located on Highway No. 3 in the south-west section of the County of Kent.

In general, surface waters and other drainage from the eastern parts of the village are directed to a watercourse known locally as Two Creek. Drainage from the western portions of Wheatley is to a stream known as West Creek. A municipal trunk storm sewer called The Big Drain provides drainage for the north-south central sections including the business area. This drain is located approximately one block east of, and parallel to, Erie Street and outfalls into Two Creek. Lateral storm sewers have been connected to the Big Drain as required over the years, but apparently no records of such installations have been maintained.

## WATER SUPPLY

Water for the municipality is obtained from Lake Erie. This water is passed through a micro-strainer, a solids contact unit, three rapid sand filters, and is pre and post chlorinated prior to being distributed to approximately 822 services.

## WATER POLLUTION CONTROL

### Sewage Treatment Facilities

Private septic tank systems are employed for the treatment of domestic wastes throughout the village.

In some parts of Wheatley, heavy clay soil conditions have impaired the functions of field tile disposal beds. In other sections of the village, particularly the business area, space is not available for the installation of adequate field tile disposal beds. Consequently, direct connections from private disposal units to surface water drains have occurred. This practice has resulted in gross pollution of drains within the municipality.

### Industrial Waste Disposal

The Niagara Food Products Limited, a seasonal canning operation, is the only industry in Wheatley that produces waste water requiring treatment. Processing waste is satisfactorily treated in a retention lagoon system prior to effluent discharge to the Two Creek watercourse.

### Refuse Disposal

The village refuse disposal site is located near the south-eastern limits of Wheatley, on the west bank of Two Creek. The operation includes burning, covering and compacting.

At the time of the survey the operation of the site appeared to be satisfactory. Stream samples collected in the vicinity of the site (Table I) showed no indication that the operation was contributing contaminating materials to the stream. However, the proximity of the site to the watercourse, may be considered as a potential source of pollution. Therefore, extreme care in future operation should be exercised to ensure that pollution does not occur.

TABLE NO. I - TWO CREEK WATERCOURSE

	<u>5-Day</u> <u>BOD</u>	<u>SOLIDS</u>			<u>Phenols</u> <u>in ppb</u>	<u>pH</u>	<u>Iron</u>	<u>Kjeldahl</u> <u>as N</u>
		<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>				
(1)	4.0	626	90	536	2	7.5	5.80	2.2
(2)	4.4	596	86	510	2	7.6	5.60	3.1

(1) Two Creek above refuse disposal site.

(2) Two Creek below refuse disposal site.

### WATER QUALITY ANALYSES

As a measure in assessing the level of pollution being discharged from the village, water samples were collected, where possible, from the flows of surface water drains, storm sewers and the receiving watercourses known as Two Creek and West Creek.

The sanitary chemical analyses and the results of bacteriological examinations of samples collected from the streams and drains are listed in Tables II and III respectively. The locations of sampling points are designated on the accompanying map by watercourse mileage distances from Lake Erie.

#### INTERPRETATION OF ANALYSES

For convenience in the interpretation of laboratory analyses, the Ontario Water Resources Commission objectives for water quality pertaining to surface water drains, storm sewers and watercourses are listed as follows:

##### Surface Water Drains and Storm Sewers

5-Day BOD (Biochemical Oxygen Demand)  
- not greater than 15 parts per million (ppm)

Suspended Solids Content  
- not greater than 15 parts per million (ppm)

Coliform Count (Membrane Filter - M.F.)  
- not greater than 2400 per 100 millilitres (ML)

Anionic Detergents (ABS)  
- the presence of anionic detergents in water samples usually indicates pollution from domestic sources.

##### Watercourses

5-Day BOD (Biochemical Oxygen Demand)  
- not greater than 4 parts per million (ppm)

Coliform Count (Membrane Filter - M.F.)  
- not greater than 2400 per 100 millilitres (ML)



## SIGNIFICANCE OF LABORATORY ANALYSES

### Surface Water Drains and Storm Sewers

All samples collected from the surface water drains and storm sewers indicated pollution greatly in excess of OWRC water quality objectives. Extremely high levels of pollution were present at the following locations:

- (i) TC-0.72W - Big Drain outfall
- (ii) WC-0.94W - Talbot Rd. - drain outfall to West Creek
- (iii) WC-0.9W - Buchanan St. - drain outfall to West Creek
- (iv) M-1.45W - Manhole-N. of Richard St., W side of Hillside Ave.

The high BOD, suspended solids and coliform counts exhibited by samples taken at these locations are an indication that sanitary sewage and other domestic wastes are the probable sources of the pollution. The varying concentrations of anionic detergents in all samples is a further indication of pollution from domestic sources.

### Two Creek and West Creek Watercourses

Conditions pertaining to gross pollution in the Two Creek and West Creek watercourses were also indicated during the survey. This is substantiated by the analyses results of the samples collected from the streams (Table II).

## SUMMARY AND CONCLUSIONS

A water pollution survey was conducted in the Village of Wheatley during 1967.

The excessively high coliform counts, suspended solids content, 5-day BOD values and the presence of anionic detergents in water samples, collected from the storm and surface water drains, indicate that inadequately treated domestic sewage and waste is being discharged into the municipal drains. These drains in turn outfall to the Two Creek and West Creek watercourses, constituting a major source of pollution to the streams. On comparing past and present survey results it is evident that the water quality of the watercourse is progressively deteriorating.

It has been confirmed by staff of the Kent County Health Unit that alleviation of the pollution problem, being presently experienced in Wheatley, cannot be satisfactorily achieved by corrective actions to septic tank systems on an individual basis for the following reasons:

- (i) the heavy clay soil conditions in parts of the village hamper the satisfactory operation of field tile disposal beds.
- (ii) lack of space, particularly in the business sections, prevents the installation of adequate field tile disposal beds. This condition has resulted in direct connections from private waste disposal units to surface water drains.

RECOMMENDATIONS

A sewerage works programme consisting of the installation of sanitary sewers and the construction of an adequate system for sewage treatment should be instituted for the Village of Wheatley.

Prepared by A. Burlachenko  
A. Burlachenko,  
Technologist,  
Division of Sanitary Engineering.

/jg

TABLE II

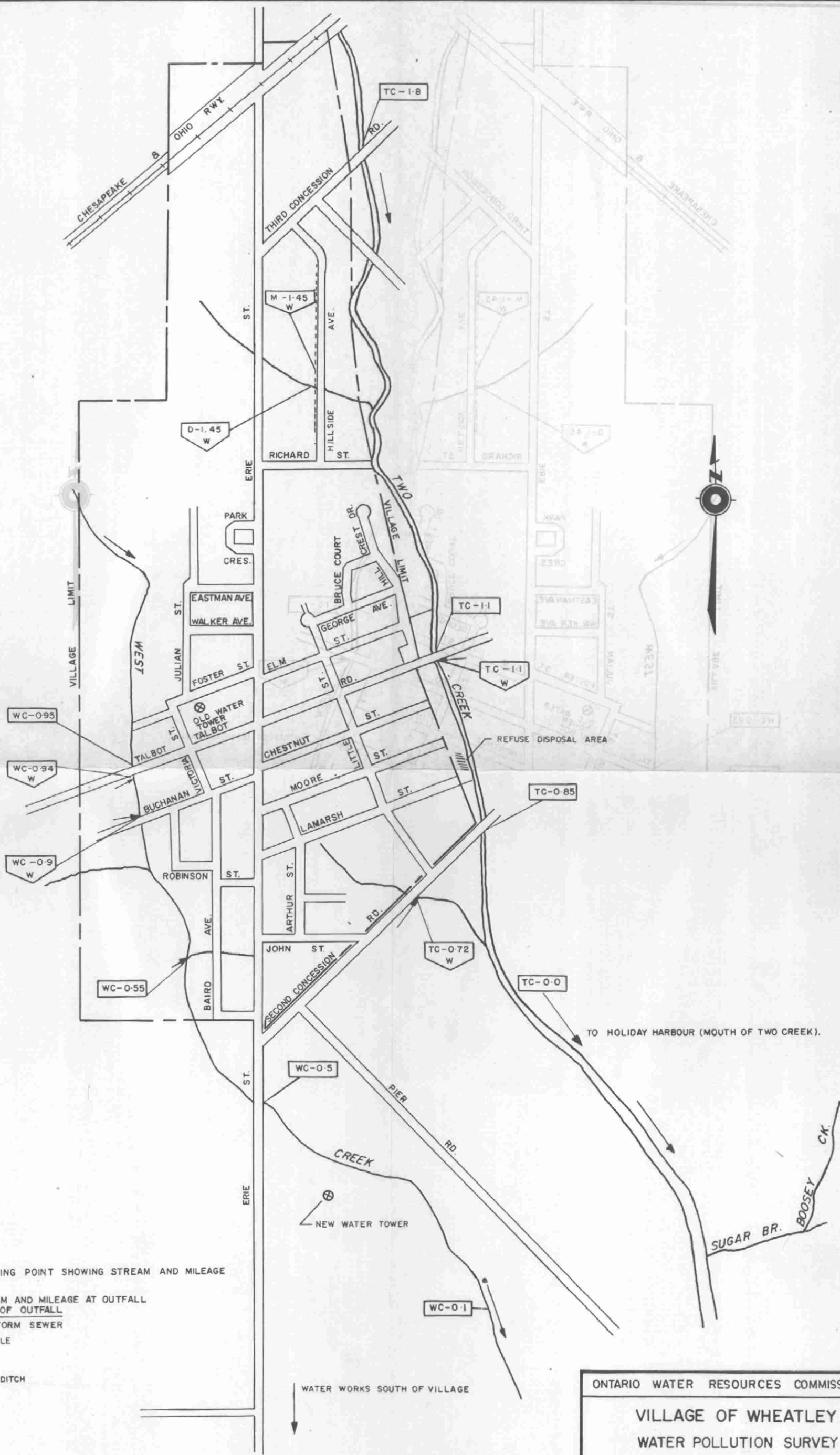
VILLAGE OF WHEATLEY - WATER QUALITY SURVEY - TWO CREEK & WEST CREEK WATERCOURSE

Sampling No.	Location of Sampling Point	5-Day BOD (ppm)	SOLIDS (ppm)			Anionic Detergents as ABS (ppm)	Coliform Count per 100 ml (M.F.)
			Total	Susp.	Diss.		
WC-0.95	West Creek at Talbot Road	106.0	1438	338	1100	21.0	25,000,000
WC-0.55	West Creek - west of Baird Avenue	64.0	646	56	590	9.0	40,000
WC-0.5	West Creek at Erie Street	42.0	590	57	533	6.0	590,000
WC-0.1	West Creek near mouth	4.6	370	117	253	0.0	410
TC-1.8	Two Creek at Concession #3	7.0	610	23	587	0.1	3,400
TC-1.1	Two Creek at Talbot Road	32.0	704	95	609	3.6	52,000,000
TC-0.85	Two Creek at #2 Concession Road	4.4	512	16	496	2.5	3,000,000
TC-0.0	Two Creek at mouth (Holiday Harbour)	9.0	756	252	504	0.1	8.0

TABLE III

VILLAGE OF WHEATLEY - WATER POLLUTION SURVEY - SURFACE WATER DRAINS & STORM SEWERS

Sampling No.	Location of Sampling Point	5-Day BOD (ppm)	<u>SOLIDS (ppm)</u>			Anionic Detergents as ABS (ppm)	Coliform Count per 100 ml (M.F.)
			Total	Susp.	Diss.		
TC-1.1W	Talbot Rd. drain outfall to Two Creek	14	400	74	326	0.2	68,000,000
TC-0.72W	Big Drain outfall (Trunk Sewer)	80	550	80	470	13.0	9,000,000
WC-0.94W	Talbot Rd. drain outfall to West Creek	34	658	52	606	15.0	76,000,000
WC-0.9W	Buchanan St. drain outfall to West Creek	34	682	62	620	9.0	1,840,000
D-1.45W	Ditch - N. of Richard St. - W. Side of Hillside Avenue	10	664	21	643	1.1	34,000,000
M-1.45W	Manhole - N. of Richard St. - W. Side of Hillside Avenue	70	520	41	479	2.0	520,000



# LEGEND

WC-0.5 - SAMPLING POINT SHOWING STREAM AND MILEAGE

TC-1.1 - STREAM AND MILEAGE AT OUTFALL  
W - TYPE OF OUTFALL  
W - STORM SEWER

M-1.45 - MANHOLE

D-1.45 - OPEN DITCH

ONTARIO WATER RESOURCES COMMISSION

## VILLAGE OF WHEATLEY WATER POLLUTION SURVEY 1967

SCALE: 800 400 0 800 FT.

DRAWN BY: A. LOMBARDI DATE OCT. 1967

CHECKED BY: DRAWING No. 67-81